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Accounting for the NCEA : Has the Transition to Standards-based Assessment Achieved its Objectives?

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Keywords

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This paper identifies trends in secondary school accounting participation and achievement during the first five years of the full implementation of the National Certificate of Educational Achievement (NCEA) in New Zealand schools. NCEA marks a shift from a norm-referenced assessment regime to standards-based assessment. Literature suggests that standards-based assessment increases the academic performance of minority ethnic groups (such as Maori and Pacific Island students), and low socio-economic status (SES) students. The author pays particular attention to these groups and his analysis reveals some interesting results: in accounting, the NCEA has not met expectations for these students. From 2004 to 2008, the number of low SES accounting students has dropped, as has the number of accounting standards entered and the rates of achievement. Likewise, there has been no significant improvement in the academic performance of Maori students taking accounting standards, while Pacific Island students have experienced a significant decrease in achievement. The author also discusses how studying high school accounting impacts on tertiary level study and offers some future implications of this research.

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1. Introduction

There has been a great deal of research carried out on the impact of secondary school subject choices on tertiary level study. In a summary of Australian and US research, Tickell and Smyrnios (2005) state "research indicates that one of the strongest predictors of tertiary academic performance is prior academic performance" (p241). They further conclude that "Year 12 score is the best single predictor of academic success in first-semester university with correlations ranging between r=.30 and r=.50" (p241), citing Clayton, Goleby and McMicken (1992). Clayton, Goleby & McMicken (1992) cite Masters & Beswick (1986) when they say that "Year 12 score, as a predictor of first-year university academic performance, is hard to improve upon" (p14) – reporting a middling to high correlation of r=.60. (Masters & Beswick (1986), in Clayton, Goleby & McMicken (1992)). Urban et al. (1999) found Year 12 score to be a significant predictor of bachelor degree completion: 78% of students with a Year 12 score in the top decile completed their degree, compared to only 55% of students in the bottom decile. Australian-based research has yielded similar results, with Archer, Cantwell and Bourke (1999), and Evans and Farley (1998) all finding Year 12 scores to be significant predictors of first-semester university academic performance.

Tickell and Smyrnios (2005) went on to ask: "What are the short-term and long-term effects of completing Year 12 Accounting?" (p242). They found empirical research has drawn mixed results, quoting Baldwin and Howe (1982), Bergin (1983), Doran, Bouillon and Smith (1991) and Mitchell (1985), who all found that studying accounting in secondary school did not result in higher first-year tertiary level accounting grades. However, Auyeung and Sands (1994) found that a group who had studied accounting at secondary school out-performed a group who had not. Christopher and Debreceny (1993) and Evans and Farley (1998) both reported similar findings. Evans and Farley (1998) found that the higher the Year 12 accounting score, the greater the likelihood of passing first semester university accounting.

University and secondary school curriculum and assessment methods do not remain static. It is conceivable that over time the first year tertiary accounting curriculum and secondary school accounting curriculum have become more closely aligned. As a result, stronger correlations are now found between high school accounting performance and first year tertiary accounting performance. Tickell and Smyrnios (2005) reported "successful Year 12 Accounting completion had an enduring positive effect for all university accounting grades" (p239). In another study, Rohde and Kavanagh (1996) found that "for students entering tertiary courses with similar academic ability, i.e. obtained the same entrance score, the first year tertiary accounting result obtained by a student who studied accounting previously is between one and two grades higher than that of a student who did not study accounting at high school" (p275). In a study using Hong Kong data, Gul and Fong (1993) also found that previous knowledge of accounting has a positive and significant impact on student performance in introductory accounting courses at tertiary level.

New Zealand-based research on this topic is relatively scarce. Keef (1992) found that studying accounting in the fifth form (now known as Year 11), the sixth form (Year 12), or the fifth and sixth form "did not provide a comparative advantage over the total absence of such study in the corresponding first-level course at Massey University in New Zealand" (p66). This study, however, neglected to include the seventh form (Year 13), the final year of schooling in New Zealand. In recent research, Engler (2010) suggests "Higher performance at university is more closely related to how well students performed at school, rather than to the particular subjects they studied at school" (p2). However, Engler also reports "There are some skills and knowledge that do appear to be important to performance at university. Mathematics at school is associated with better performance in mathematical science,

chemistry with chemical science, English with studies in law. The strongest effect was for accounting students taking courses in accountancy" (p2).

Given the correlation between academic performance in secondary school accounting and first year tertiary level accounting, it is pertinent for tertiary institutions to examine the impact of the National Certificate of Educational Achievement (NCEA) on the subject of Accounting in New Zealand secondary schools.

The New Zealand Context

All New Zealand state secondary schools are given a decile rating, which represents the socio-economic status (SES) of the school's catchment area. According to the New Zealand Ministry of Education website (Ministry of Education 2010), in order to assess a school's decile rating, five factors are used to measure the socio-economic standing of its community: household income, occupation, household crowding, educational qualifications and income support (the percentage of parents who receive a benefit). Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students. A low decile school would therefore draw on communities where there is a greater density of households having low incomes, manual occupations, greater household crowding, lower educational qualifications and greater dependence on income support.

The NCEA is a standards-based assessment regime in which students' performance is measured against standards of achievement or competence. Its introduction marks a shift from the norm-based assessment that had previously existed in New Zealand secondary schools. The ideological reason for the change is summed up by Shulruf et al. (2009) when they state: "This change was a result of a lengthy reform process influenced by arguments that the norm-based assessment system had, for example, disadvantaged students from certain ethnicities particularly Maori and Pacific and students from lower income families" (p16).

In a review of the literature of standards-based assessment (SBA) in senior secondary schools, Rawlins et al. (2005) describe advocates of SBA who believe it results in improved understanding and transparency of the assessment process (Barker 1995, in Peddie & Tuck 1995; Francisco 1999; Tomlinson 2002), higher levels of student achievement (Supovitz 2001), and improved links between knowledge and performance (Barker 1995, in Peddie & Tuck 1995). However, Rawlins et al. (2005, p111) go on to say:

> *The academic achievements of diverse learners within SBA systems have been mixed. The research suggests that although diverse students perform better under SBA than under a norm-referenced system, there is still a significant gap between the achievement of students with special needs and their middle class majority peers (Ortiz 2000), particularly minority students and those from low income households (Kannapel et al. 2001; Madaus & Clarke 2001).*

They then continue "Standards-based assessment potentially provides schools with greater opportunity to adapt assessment tasks to meet the needs of diverse learners, while still assessing the set standard(s) (Hager, Gonczi & Athanasou 1994; Hipkins et al. 2004)" (Rawlins et al. 2005, p111). Shulruf, Hattie and Tumen (2010, p141) concur when they say:

> *The development and introduction of NCEA was a major change in New Zealand education policy. It aimed to ensure that all young people, regardless of their ethnicity and family income, have the opportunity to develop the knowledge and skills to enable their participation in the changing workforce and, at the same time, promote a culture of lifelong learning within society*

Strathdee (2003) states one aim of the NCEA is to remove barriers for low achievers and thus to equalise the imbalances due to race, class and income. He specifically refers to a need to lift the standards of achievement for Maori and Pacific Island students. Philips (2003) describes that in recent education reforms in New Zealand, "the government has focused on policies aimed at increasing the participation and achievement of Maori and Pacific Island students, who have traditionally been under-represented or achieved at a lower level than the majority of students in post-compulsory education and training" (p290).

NCEA

A National Certificate of Educational Achievement – or NCEA – is the most common secondary school qualification offered in New Zealand. It can be obtained at three levels. Generally, Year 11 students attempt a Level 1 certificate, Year 12 students attempt a Level 2 certificate, and Year 13 students attempt a Level 3 certificate. Under the former norm-referenced system students entered subjects; but in order to obtain the NCEA students now enter 'standards' in a given subject. Standards represent the skills or knowledge a student is expected to acquire in that subject. For example, an accounting standard is: process financial information for partnerships and companies. Students are assessed, through assignments and internal and/or external exams, in order to measure how well they have met the standards.

Schools assess three types of standards:

Unit standards. These existed prior to the implementation of the NCEA, and were often completed as an alternative to norm-referenced examinations. Unit standards are a standards-based pass/fail assessment. They are assessed and marked internally. Assessments and samples of student work are periodically moderated by the New Zealand Qualifications Authority (NZQA) as a form of quality control.

Internally assessed achievement standards. The difference between these and unit standards is that if a student meets the standard, then they can be awarded the credits at an achieved, merit or excellence level, rather than a simple pass/fail.

Externally assessed achievement standards. The difference between these and internally assessed achievement standards is that these usually take the form of externally moderated and marked examinations completed at the end of the school year.

A major change with the introduction of the NCEA was that unit standards – which were previously completed as an alternative to externally assessed examinations and could not be used as part of the University Entrance qualification – could now count not only towards the NCEA, but also towards University Entrance.

This paper identifies trends in participation and achievement in secondary school accounting in the first five years since the full implementation of the NCEA, and it seeks to clarify whether the NCEA has improved academic outcomes for low SES students and students from ethnic minorities studying accounting in New Zealand secondary schools. The ethnic groupings analysed are European, Maori, Pacific Islanders and Asian.

2. Method

The New Zealand Qualifications Authority (NZQA) and the Ministry of Education supplied data by email and webpages. Basic statistical calculations – such as percentage change calculations and the percentage of the total calculations – were completed and applied to data relating to the number of standards entered, as well as to data pertaining to rates of non-achievement.

To establish if any of the percentage calculations pertaining to rates of non-achievement were statistically significant, the data were analysed using various statistical techniques. For ease of reporting, ordinary least squares (OLS) regressions were conducted, with the dependent variable being whether a student received a *Not Achieved* grade, or an *Achieved* or better grade. Due to the binary nature of the dependent variable, a dummy variable was used – with 0 representing a *Not Achieved* grade, and 1 representing a grade of *Achieved* or better. Where a student was entered for a standard but a grade was not reported by the school (for unit standards and internally assessed achievement standards), the non-reported grade was coded as a *Not Achieved* grade, as many schools simply did not report *Not Achieved* grades.

The explanatory variable in the regression model was *Year*, comparing rates of non-achievement in 2004 to rates of non-achievement in 2008. Due to its binary nature, the explanatory variable was also a dummy variable, with 0 for 2004 and 1 for 2008 data. The OLS regression coefficients can therefore be interpreted as changes in the percentage of students receiving an *Achieved* grade or better.

The model took the form:

$$Rate\ of\ Achievement = \alpha + \beta 1\ Year + \varepsilon$$

Where:

Rate of Achievement = dummy variable (*Not Achieved* =0; *Achieved* or better =1)

Year = dummy variable (2004 = 0; 2008 = 1)

ε = the error term

α = the intercept

Regressions were run for data segregated by decile grouping and ethnicity.

As the data was binary and nominal by nature, a two by two contingency table analysis was performed using a chi-square statistic. Risk differences were calculated by running a probit regression reporting changes in probability. The changes in probability reported by the probit regression were then cross-checked for accuracy against coefficients reported in the OLS regressions. Odds ratios were calculated by running a logit regression reporting odds ratios. All statistical methods reported the same level of significance.

3. Results

From 2004 to 2008, there has been a 1% increase from 17,713 to 17,952 in the number of students taking senior accounting (Years 11, 12 and 13). According to the Ministry of Education's definition, a student is deemed to be taking accounting if that student is enrolled and participating in the subject for 20 hours or more per year. As a student could in theory only enter one accounting standard in a year, but still be counted as "doing" accounting, it is also relevant to analyse trends in the number of accounting standards that students are choosing to enter.

Table 1 reveals that from 2004 to 2008 there has been a 10% reduction in the number of accounting standards that students are choosing to enter. As a group, more students are doing fewer standards.

Table 1
Accounting Standards Entered by Assessment Type for Levels 1-3

Assessment Type	**2004**	**2005**	**2006**	**2007**	**2008**	**% Δ**
Unit Standard	5,291	5,954	8,246	10,190	12,293	+132%
Not Achieved	2160	2663	3052	3609	5284	+145%
Internal Achievement Standards	26,718	26,177	26,677	24,451	25,189	-6%
Not Achieved	4955	4642	4774	3780	5780	+17%
External Achievement Standards	74,764	66,073	66,629	62,349	58,478	-22%
Not Achieved	23745	21893	21587	19915	17970	-24%
Total Standards	**106,773**	**98,204**	**101,552**	**96,990**	**95,960**	**-10%**
Not Achieved	**30,860**	**29,198**	**29,413**	**27,304**	**29,034**	**-6%**

In percentage terms, there has been a large increase (132%) in the number of unit standards that students are choosing to enter. However, there has also been a more than proportionate increase (145%) in the number of students who are failing to achieve the unit standards. Internally assessed achievement standards have seen a 6% reduction in the number of entries, but a 17% increase in the number of *Not Achieved* grades. Externally assessed achievement standards have seen a 22% decline in the number of standards entered, and a corresponding 24% decline in the number of *Not Achieved* grades. When the totals of all three different types of standards are aggregated, there has been a 10% reduction in the number of accounting standards entered, and a 6% reduction in the number of *Not Achieved* grades.

This data has been stratified according to SES, with the results shown in Table 2.

Table 2
Standards Entered and Not Achieved Grades Received, by School Decile

	2004	**2005**	**2006**	**2007**	**2008**	**% Δ**
Low Decile School Entries	14,185	10,298	10,581	9,821	10,155	-28%
Number of Not Achieved	6,348	4,975	4,869	4,462	5,032	-21%
Medium Decile School Entries	4,1230	42,193	44,310	42,737	39,220	-5%
Number of Not Achieved	12,299	13,289	13,564	12,471	12,750	4%
High Decile School Entries	45,807	40,620	41,747	39,602	45,421	-1%
Number of Not Achieved	10,812	9,852	10,011	9,439	10,798	0%

There has been a large (28%) decrease in the number of standards that students from *Low Decile Schools* (Decile 1–3) are choosing to enter, with a less than proportionate (21%) decrease in the number of *Not Achieved* grades received by students in *Low Decile Schools*. *Medium Decile Schools* (Decile 4–7) have seen a reduction of 5% in the number of standards entered, but a 4% increase in the number of *Not Achieved* grades. For students from *High Decile Schools* (Decile 8–10), there has been a 1% reduction in the number of standards entered, and no change to the rate of non-achievement. The total number of accounting standards entered by students from *Low Decile Schools* has shrunk from 14% to 11%.

OLS, probit and logit regressions and chi-square analysis were undertaken in order to establish whether there have been any statistically significant changes in the rates of achievement for each decile grouping from 2004 to 2008. The results are shown in Table 3.

Table 3
Achievement, by School Decile

Decile	**OLS**	**$\chi 2$**	**Logit**	**Probit**
Decile 1 - 3	-0.05*** (-7.41)	(54.59)*** (1,N=24,340)	0.82*** (-7.40)	-0.05*** (-7.40)
Decile 4 - 7	-0.03*** (-8.20)	(67.14)*** (1,N=80,450)	0.88*** (-8.20)	-0.03*** (-8.20)
Decile 8 - 10	-0.00 (-0.60)	(0.35) (1,N=91,228)	0.99 (-0.60)	-0.00 (-0.60)

*** $p < 0.01$

Low and medium decile groupings show a decrease in the rates of achievement from 2004 to 2008, significant at the 99% confidence interval. The probit and OLS coefficients can be interpreted as the change in the percentage of *Achieved* grades or better received. Students from *Low Decile Schools* experienced a 5% decrease, and students from *Medium Decile Schools* experienced a 3% decrease, in the percentage of *Achieved* grades or better received. Students from *High Decile Schools* did not experience a significant change in their rates of achievement, as shown by the change in the percentage of *Achieved* grades or better received being 0%. The chi-square statistic confirms the levels of significance reported by all three regressions. The logit coefficients can be interpreted as the probability of receiving an *Achieved* grade or better in 2008 relative to 2004. The odds of students from *Low Decile Schools* receiving an *Achieved* grade or better in 2008 relative to 2004 are 0.82. The corresponding odds for students from *Medium Decile Schools* are 0.88. There is no significant difference in the probability of receiving an *Achieved* grade or better in 2008 relative to 2004 for students from *High Decile Schools*.

Table 4 shows the number of students taking accounting by school decile grouping from 2004 to 2008.

Table 4
Students taking Accounting, by School Decile

	2004	**2005**	**2006**	**2007**	**2008**	**% Δ**
Decile 1-3	2,276	1,892	1,863	1,879	1,734	-24%
Decile 4-7	6,534	7,290	7,673	7,985	7,015	7%
Decile 8-10	7,645	7,024	7,276	7,153	8,631	13%

Low Decile Schools show a 24% reduction in the number of students taking accounting, which is similar to the 28% reduction in the number of accounting standards entered by students from these schools. In *Medium Decile Schools*, although there was a 5% reduction in the number of accounting standards being entered, there was a 7% increase in the number of students taking accounting. In *High Decile Schools* there was a 1% decrease in the number of accounting standards being entered, but a 13% increase in the number of students studying accounting. As a group, there are more students choosing to do accounting, but they are entering fewer accounting standards.

Table 5 shows the number of standards being entered (*Total Standards Entered*) and the number of *Not Achieved* grades received, by ethnicity.

Table 5
Standards and Grades, by Ethnicity

Ethnic Group	**2004**	**2005**	**2006**	**2007**	**2008**	**% Δ**
European						
Total Standards Entered	57,846	54,935	58,158	56,063	53,985	-7%
Number of Not Achieved	13,895	14,140	14,314	13,487	14,147	2%
Maori						
Total Standards Entered	8,587	7,863	8,516	7,910	7,726	-10%
Number of Not Achieved	3,773	3,385	3,540	3,322	3,391	-10%
Pacific Island						
Total Standards Entered	7,343	7,301	7,533	7,915	8,446	15%
Number of Not Achieved	3,558	3,821	3,937	3,748	4,390	23%
Asian						
Total Standards Entered	29,475	25,580	25,210	23,202	23,990	-19%
Number of Not Achieved	8,451	7,037	6,893	6,066	6,474	-23%

European students show a 7% decrease in the *Total Standards Entered*, with a 2% increase in the number of *Not Achieved* grades received. Maori students show a 10% decrease in the *Total Standards Entered*, with an equivalent reduction in the number of *Not Achieved* grades. Asian students recorded the biggest change, with a 19% decrease in the *Total Standards Entered*, and a 23% reduction in the number of *Not Achieved* grades. The only ethnic grouping to increase the *Total Standards Entered* – by 15% – was Pacific Island students. However, there was a more than proportionate 23% increase in the number of *Not Achieved* grades for this group.

Regressions and chi-square analysis, stratified by ethnic grouping, established whether there had been a significant change in the rate of achievement for the different ethnic groupings from 2004 to 2008. These results are shown in Table 6.

Table 6
Changes in Rates of Achievement, by Ethnicity

Ethnicity	OLS	$\chi 2$	Logit	Probit
European	-0.02*** (-8.43)	(70.83)*** (1,N=111,831)	0.89*** (-8.42)	-0.02*** (-8.42)
Maori	0.00 (0.05)	(0.00) (1,N=16,313)	1.00 (0.05)	0.00 (0.05)
Pacific Island	-0.04*** (-4.42)	(19.36)*** (1,N=15,789)	0.87*** (-4.42)	-0.04*** (-4.42)
Asian	0.02*** (4.32)	(18.59)*** (1,N=53,465)	1.09*** (4.32)	0.02*** (4.32)

*** $p < 0.01$

There was no significant change in the *Rate of Achievement* for Maori students, as is shown by the change in percentage of *Achieved* grades or better being 0%. For Pacific Island students, there was a 4% decrease in the number of *Achieved* grades or better, with European students experiencing a 2% decrease. Asian students experienced a 2% increase in the number of *Achieved* grades or better. This is reflected in their odds ratio, with Asian students having a 1.09 greater probability of receiving an *Achieved* grade or better in 2008, compared to 2004. The corresponding odds for Pacific Island and European students are 0.87 and 0.89 respectively. Changes in the *Rate of Achievement* for Pacific Island, European and Asian students are significant at the 99% confidence level.

Data to this point has been stratified by the ethnic grouping of the student entering each standard. This does not tell us what has been happening to the number of students taking accounting by ethnic grouping. Unfortunately this information is not available; however, an ethnic breakdown of all students in Years 11-13 in New Zealand schools is available. There has been a 5% reduction in the number of European students in senior school, which is similar to the 7% reduction in the *Total Standards Entered* by European students. Even though there was a 10% reduction in the *Total Standards Entered* by Maori students, there was a 3% increase in the number of Maori students in senior school. There was an 11% increase in the number of Pacific Island students in senior school, which is similar to the 15% increase in the *Total Standards Entered* by these students. Finally, the 12% increase in the number of Asian students in senior school seems at odds with the 19% reduction in the *Total Standards Entered* by Asian students for the same period. This may be explained by the 32% decrease in the number of full fee paying (FFP) students who choose to study accounting. The NZQA does not identify FFP students as a separate category when reporting entries and results, and it is likely that many of the students classified as FFP by the Ministry of Education would, in fact, be classified as Asian by the NZQA in its reporting.

Some literature – as discussed above – has drawn a link between academic performance in the final year of secondary school and the first year of tertiary study. Therefore this research focusses on achievement data for students entering Level 3 (the final year of NCEA for most students) accounting standards.

Table 7
Standards Entered and Grades Not Achieved, Level 3

	2004	**2005**	**2006**	**2007**	**2008**	**% Δ**
External Achievement Standards						
Total	13,915	12,972	12,456	11,504	11,820	-15%
Not Achieved	4,325	4,101	4,506	4,216	3,915	-9%
Internal Achievement Standards						
Total	2,740	2,809	2,686	2,565	2,817	3%
Not Achieved	391	420	366	386	560	43%
Unit Standards						
Total	1,117	1,173	1,884	2,928	3,749	236%
Not Achieved	579	613	686	955	1,366	136%
TOTAL	**17,772**	**16,954**	**17,026**	**16,997**	**18,386**	**3%**
Not Achieved	**5,295**	**5,134**	**5,558**	**5,557**	**5,841**	**10%**

Table 7 shows that there has been a 15% decrease in the number of externally assessed standards entered, and a 9% decrease in the number of *Not Achieved* grades. Internally assessed achievement standards have seen a small (3%) increase in the *Total Standards Entered*, but a much greater than proportionate increase in the number of *Not Achieved* grades (43%). There has been a very large increase in the number of unit standards entered (236%), but only a 136% increase in the number of *Not Achieved* grades. When all standards are aggregated, there has been a 3% increase in the *Total Standards Entered* at Level 3, and a 10% increase in the number of *Not Achieved* grades received. For the corresponding period, the number of students studying Level 3 accounting has increased by 8%, from 3,415 to 3,695.

When regressions and chi-square analysis were run on the different types of assessments in Level 3 accounting, all results were significant at the 99% confidence level, as shown in Table 8.

Table 8
Changes in Rates of Achievement for Level 3, by Assessment Type

Assessment Type	OLS	$\chi 2$	Logit	Probit
Externally Assessed Achievement Standards	-0.02*** (-3.50)	(12.13)*** (1,N=25,735)	0.91*** (-3.50)	-0.02*** (-3.49)
Internally Assessed Achievement Standards	-0.06*** (-5.57)	(30.42)*** (1,N=5,557)	0.67*** (-5.53)	-0.06*** (-5.55)
Unit Standards	0.15*** (9.30)	(84.41)*** (1,N=4,866)	1.88*** (9.15)	0.15*** (9.15)
All Standards	-0.02*** (-4.07)	(16.44)*** (1,N=36,158)	0.91*** (-4.07)	-0.02*** (-4.07)

*** $p < 0.01$

Unit Standards have seen a 15% increase in the number of *Achieved* grades or better being awarded, whereas *Internally Assessed Achievement Standards* and *Externally Assessed Achievement Standards* have experienced decreases of 6% and 2% respectively. Across all standards, this equals a 2% decrease in the number of *Achieved* grades or better. These results are also reflected in the large differences in odds ratios between the different types of assessment. A student sitting a Level 3 *Unit Standard* in 2008 had a 1.88 greater chance of receiving an *Achieved* grade or better than in 2004. However, the odds of receiving an *Achieved* grade or better for Level 3 *Internally Assessed Achievement Standards* in 2008 were 0.67, relative to 2004. The corresponding figure for Level 3 *Externally Assessed Achievement Standards* was 0.91, which mirrors the odds ratio for all Level 3 standards (*All Standards*).

4. Conclusions

In the years since the full implementation of the NCEA there have been some noticeable changes in the way that senior secondary school students approach studying accounting. More students are studying accounting, but they are choosing to enter fewer accounting standards, which tends to suggest that they (or their teachers) are becoming more selective in their choices. Yet despite there being fewer standards entered, the proportion of *Not Achieved* grades has risen. A 10% reduction in the *Total Standards Entered* has only seen a 6% reduction in the number of *Not Achieved* grades received. The final year (Level 3) accounting standards cohort studied in this research actually performed more poorly in 2008 than the equivalent group did in 2004. Even though there was only a 3% increase in the number of Level 3 accounting standards entered, there was a 10% increase in the number of *Not Achieved* grades received.

There has been a pronounced shift away from achievement standards – especially externally assessed achievement standards – and a large percentage increase in the number of unit standards entered. However, because the number of entries in unit standards was initially low, there has been an overall decrease in the number of standards entered. At Level 3, the shift away from externally assessed achievement standards to unit standards has been even more pronounced. This is not surprising, and appears to be a natural reaction to unit standards now being able to be used to obtain the University Entrance qualification.

In terms of socio-economic status, *Low Decile Schools* have seen the largest drop in the number of accounting standards entered, with a reduction of over 25%. Conversely, *High Decile Schools* saw a reduction of only 1%. This is of concern. In 2004, only 14% of accounting standards were entered by students from *Low Decile Schools*, and in 2008 this had dropped to 11%. The 28% reduction in the number of accounting standards entered by students from *Low Decile Schools* also saw a 21% reduction in the number of *Not Achieved* grades received by these students. Consequently, a smaller number of standards were passed by students from *Low Decile Schools* under the first five years of the NCEA. There has been a 5% reduction in the number of *Achieved* or better grades received by students from *Low Decile Schools*, significant at the 99% confidence level. There has been a similar 3% reduction in the number of *Achieved* or better grades received by students from *Medium Decile Schools*, significant at the 99% confidence level. However, there has been no significant change for students from *High Decile Schools*. One of the stated aims of introducing a standards-based assessment regime was to raise the academic performance of low SES students. This has clearly not been successful in accounting. Not only has their performance worsened, but there are now fewer low SES students studying accounting.

There has been a sharp increase in the number of accounting standards entered by Pacific Island students; however, their performance has not been good, with a more than proportionate increase in the number of *Not Achieved* grades being received. On the other hand, there has been a sharp reduction – of approximately 20% – in the number of accounting standards entered by Asian students. As mentioned earlier, this is possibly due to the decrease in the number of full fee paying students coming to New Zealand, as accounting has been a popular subject with that particular cohort. There has been a 10% reduction in the number of accounting standards entered by Maori students, with an exactly proportionate decrease in the number of *Not Achieved* grades received. European students have a smaller reduction (7%) in the number of accounting standards entered, with an actual increase in the number of *Not Achieved* grades received. With regard to the overall ethnic mix of students sitting accounting standards, the decrease in the number of Maori students has been more than replaced by Pacific Island students. However, given the poor performance of Pacific Island students, we can conclude that the ethnic diversity of students passing accounting standards has actually reduced. The stated goal of improving the academic performance of ethnic minorities such as Maori and Pacific Island students through the introduction of the NCEA has not been successful in accounting. There has been no significant change in achievement rates for Maori students entering accounting standards, and there has been a 4% decrease in rates of achievement for Pacific Island students, significant at the 99% confidence level. Maori students are performing relatively better, but only because Pacific Island and European students are performing worse.

There were more students studying accounting in their final year of secondary schooling in 2008 than in 2004, and more accounting standards entered. However, there was also a more than proportionate increase in the number of *Not Achieved* grades received. Across NCEA at Levels 1 and 2 the number of accounting standards entered is declining; however at Level 3, the number of accounting standards entered appears to be increasing. As mentioned above, this may be explained by the University Entrance qualification. For

University Entrance, the number of standards that a student achieves is more important than the level of achievement. This may be especially significant for marginal students and may also explain the large percentage increase in the number of unit standards entered. Students may be increasing the number of standards they enter in order to maximise their chances to obtain University Entrance. As unit standards are internally assessed, any tests can be re-sat, thus increasing the chances of success; whereas externally assessed achievement standards are assessed once in an invigilated examination. From 2004 to 2008, Level 3 accounting unit standards have shown a 15% increase in the number of *Achieved* grades received, significant at the 99% confidence level. By contrast, internally assessed achievement standards have shown a 6% decrease, and externally assessed achievement standards a 2% decrease in rates of achievement, both significant at the 99% confidence level.

There are several potential flow-on effects for tertiary study. Although more students are now studying accounting at secondary school, they are doing fewer standards. This may have repercussions for the tertiary sector, if students are arriving at tertiary institutions with a narrower range of accounting content coverage and basic skills. Given that the decrease in the number of *Not Achieved* grades received is not falling as rapidly as the number of accounting standards entered, it would appear that students who have studied accounting at school now have a weaker grasp of content than when NCEA was fully introduced in 2004. Furthermore, with the rise in popularity of unit standards, it is also more likely that accounting students' experience of assessment is that of non-invigilated internal assessment. This is especially noticeable at Year 13 (Level 3), where there has been an overall 3% increase in the number of accounting standards entered, but a 15% decrease in the number of externally assessed accounting standards entered.

Implications for Further Research

This paper underscores the need for further research. For example, it would be useful to explore reasons for the decline in the number of NCEA accounting standards entered by students from low SES schools, so that appropriate measures could be taken to ameliorate the SES bias; or to find out why some ethnic groups (such as Pacific Island students), underperform academically in accounting. A follow-up study on the impact of the NCEA on first-year tertiary level performance in accounting could also yield some interesting results.

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